Complete Summary

GUIDELINE TITLE

Clinical practice guidelines: penetrating neck trauma.

BIBLIOGRAPHIC SOURCE(S)

Tisherman SA, Bokhari F, Collier B, Ebert J, Holevar M, Cumming J, Kurek S, Leon S, Rhee P. Clinical practice guidelines: penetrating neck trauma. Chicago (IL): Eastern Association for the Surgery of Trauma (EAST); 2008. 52 p. [126 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Penetrating wounds of the Zone II region of the neck that penetrate the platysma

GUIDELINE CATEGORY

Management
Treatment

CLINICAL SPECIALTY

Critical Care
Emergency Medicine
Pulmonary Medicine

Surgery
Thoracic Surgery

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To answer the following questions regarding the management of penetrating injuries to Zone II of the neck that penetrate the platysma:

- Is operative management mandatory or is selective non-operative management appropriate?
- Is physical examination adequate to rule out injuries to vascular structures or the aerodigestive tract?
- Can duplex ultrasonography (US) or Computed tomography (CT) angiography rule out an arterial injury in patients with no hard signs of vascular injury on physical examination, thereby making arteriography unnecessary?
- How should specific vascular injuries be managed?
- Are both contrast studies (barium or gastrograffin swallow) and esophagoscope needed to safely rule out esophageal injury?
- Is there a need for immobilization of the cervical spine?

TARGET POPULATION

Patients with penetrating neck trauma of the Zone II region

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Assessment

1. Selective operative management and mandatory exploration (of penetrating injuries to Zone II)
2. Diagnosis of arterial injury
    - Computed tomography (CT) angiography
    - Duplex ultrasonography
    - Arteriography
3. Diagnosis of esophageal injury
    - Contrast esophagography
    - Esophagoscopy
4. Physical exam including auscultation of the carotid arteries

Management

1. Management of specific vascular injuries
    - Angiographic approaches to vertebral artery injuries
    - Ligation of the jugular vein (for complex injuries or unstable patients)

2. Cervical spine immobilization in select patients

MAJOR OUTCOMES CONSIDERED

- Mortality
- Missed injury rates

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The process utilized by this committee was developed by the Practice Management Guidelines Committee of the Eastern Association for the Surgery of Trauma (http://www.east.org).

The committee agreed upon the questions to be considered. Literature for review included the following terms: human, trauma patients, penetrating, and neck; specific structures were also searched (larynx, trachea, esophagus, carotid artery, and jugular vein). Medline and EMBASE were searched from 1966 to 2006.

NUMBER OF SOURCE DOCUMENTS

145

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Class I: Prospective, randomized, double blinded study

Class II: Prospective, randomized, non-blinded trial

Class III: Retrospective series, meta-analysis

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

An evidentiary table (see Table 1 in the original guideline document) was constructed using the 145 references that were identified: Class I, 2 references;

Class II, 26 references; and Class III, 105 references. Twelve of the references could not be classified.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Recommendations were made on the basis of the studies included in the evidentiary table (see Table 1 of the original guideline document).

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Level 1: Usually based on class I data, were meant to be convincingly justifiable on scientific evidence alone.

Level 2: Usually supported by class I and II data, were to be reasonably justifiable by available scientific evidence and strongly supported by expert opinion.

Level 3: Usually based on Class II and III data, were to be made when adequate scientific evidence is lacking, but the recommendation is widely supported by available data and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of recommendation (1-3) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

A. **Selective workup – operation vs. selective non-operative management**

Level 1

Selective operative management and mandatory exploration of penetrating injuries to Zone II of the neck are equally justified and safe.

Level 2

No recommendations.

Level 3

No recommendations.

B. **Diagnosis of arterial injury**

Level 1

No recommendations.

Level 2

Computed tomography (CT) angiography or duplex ultrasonography can be used in lieu of arteriography to rule out an arterial injury in penetrating injuries to Zone II of the neck.

Level 3

CT of the neck (even without CT angiography) can be used to rule out a significant vascular injury if it demonstrates that the trajectory of the penetrating object is remote from vital structures. With injuries in proximity to vascular structures, minor vascular injuries such as intimal flaps may be missed.

C. **Diagnosis of esophageal injury**

Level 1

No recommendations.

Level 2

Either contrast esophagography or esophagoscopy can be used to rule out an esophageal perforation that requires operative repair. Diagnostic workup should be expeditious because morbidity increases if repair is delayed by more than 24 hours.

Level 3

No recommendations.

D. **Value of the physical exam**

Level 1

No recommendations.

Level 2

No recommendations.

Level 3

1. Careful physical examination, including auscultation of the carotid arteries, is >95% sensitive for detecting arterial injuries that require repair. Given the potential morbidity of missed injuries, imaging is still recommended.
2. Physical examination is inadequate to rule out injuries to the aerodigestive tract.

E. **Management of specific vascular injuries**

Level 1

No recommendations.

Level 2

1. Except for minimal intimal irregularities or small pseudoaneurysms without neurologic deficits, penetrating injuries to the internal carotid artery should be repaired, even when severe neurologic deficits are present.
2. Angiographic approaches to the vertebral artery are preferred to operative approaches for patients with bleeding from vertebral artery injuries.
3. Ligation of the jugular vein is appropriate for complex injuries or unstable patients.

Level 3

No recommendations.

F. **Cervical Spine Immobilization**

Level 1

No recommendations.

Level 2

Immobilization of the cervical spine is unnecessary unless there is overt neurologic deficit or an adequate physical examination cannot be performed (e.g., the unconscious victim).

Level 3

No recommendations.

Definitions:

Classes of Evidence

Class I: Prospective, randomized, double blinded study

Class II: Prospective, randomized, non-blinded trial

Class III: Retrospective series, meta-analysis

Levels of Recommendation

Level 1: Usually based on class I data, were meant to be convincingly justifiable on scientific evidence alone.

Level 2: Usually supported by class I and II data, were to be reasonably justifiable by available scientific evidence and strongly supported by expert opinion.

Level 3: Usually based on Class II and III data, were to be made when adequate scientific evidence is lacking, but the recommendation is widely supported by available data and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management and treatment of patients with penetrating neck trauma

POTENTIAL HARMS

Complications related to management/treatment measures

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The Eastern Association for the Surgery of Trauma (EAST) is a multi-disciplinary professional society committed to improving the care of injured patients. The Ad hoc Committee for Practice Management Guideline Development of EAST develops and disseminates evidence-based information to increase the scientific knowledge needed to enhance patient and clinical decision-making, improve health care quality, and promote efficiency in the organization of public and private systems of health care delivery. Unless specifically stated otherwise, the opinions expressed and statements made in this publication reflect the authors' personal observations and do not imply endorsement by nor official policy of the Eastern Association for the Surgery of Trauma.
- "Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances."* These guidelines are not fixed protocols that must be followed, but are intended for health care professionals and providers to consider. While they identify and describe generally recommended courses of intervention, they are not presented as a substitute for the advice of a physician or other knowledgeable health care professional or provider. Individual patients may require different treatments from those specified in a given guideline. Guidelines are not entirely inclusive or exclusive of all methods of reasonable care that can obtain/produce the same results. While guidelines can be written that take into account variations in clinical settings, resources, or common patient characteristics, they cannot address the unique needs of each patient nor the combination of resources available to a particular community or health care professional or provider. Deviations from clinical practice guidelines may be justified by individual circumstances. Thus, guidelines must be applied based on individual patient needs using professional judgment.

*Institute of Medicine. Clinical practice guidelines: directions for a new program. MJ Field and KN Lohr (eds) Washington, DC: National Academy Press. 1990: pg 39.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2008

GUIDELINE DEVELOPER(S)

Eastern Association for the Surgery of Trauma - Professional Association

SOURCE(S) OF FUNDING

Eastern Association for the Surgery of Trauma (EAST)

GUIDELINE COMMITTEE

EAST Practice Management Guidelines Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Samuel A. Tisherman, MD; Faran Bokhari, MD; Bryan Collier, DO; James Ebert, MD; Michele Holevar, MD; John Cumming, MD; Stanley Kurek, DO; Stuart Leon, MD; Peter Rhee, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

Print copies: Available from the Eastern Association for the Surgery of Trauma Guidelines, c/o William J. Bromberg, MD, FACS, Memorial Health University Medical Center, Savannah Surgical Group, Inc., 4700 Waters Avenue, Savannah, GA 31404; Phone: (912) 350-7412; Email: guidelines@east.org

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Utilizing evidence based outcome measures to develop practice management guidelines: a primer. 18 p. 2000. Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

PATIENT RESOURCES

None available

NGC STATUS

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